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ABSTRACT

The study examined the effectiveness of teaching self-management of classroom on-task behavior to four mentally retarded/emotionally disturbed children (6-9 years old). Also explored were the effects of procedures on disruptive behavior, task performance, and task accuracy. Following baseline, a standard token program was instituted. After establishing a high rate of on-task behavior, a reversal phase was implemented. The token program was then reinstituted; followed by a series of six fading stages, during which self-management was gradually introduced by reducing verbal and physical prompts. Findings offered strong support for the use of self-management with retarded/disturbed children. (SBH)

SELF-MANAGEMENT OF ON-TASK BEHAVIOR WITH RETARDED/DISTURBED CHILDREN

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Abstract

A current trend in classroom behavior analysis is the exploration of self-management procedures. Few studies have used mentally retarded children. The present investigation successfully demonstrated the self-management of on-task behavior by four mentally retarded/emptionally disturbed children. In addition, the effect of task performance, accuracy, and disruptive behavior when on-task behavior is reinforced was examined. Results of the study found performance and accuracy to increase for most subjects while disruptive behavior declined. Implications for future research were discussed.

SELF-MANAGEMENT OF ON-TASK BEHAVIOR WITH RETARDED/DISTURBED CHILDREN

In recent years, classroom behavior analysis has begun to examine the relationship between student behavior and self-control techniques. Studies have demonstrated that academic and disruptive behaviors can be modified through self-management procedures (e.g. Drabman, Spitalnik, & O'Leary, 1973; Glynn, Thomas, & Shee, 1973). Despite the success of these techniques with both "normal" and psychiatric hospitalized children, few studies have used mentally retarded children. This is unfortunate since one of the primary problems recognized of retarded populations are their lack of independent skills (Gunzberg, 1974).

The present investigation attempted to teach four mentally retarded/emotionally disturbed children to self-manage their classroom on-task behavior. The effects of such procedures on disruptive behavior, task performance, and task accuracy were also explored.

Method

Subjects

Four children, ages 6-9 (mean =8), in a psychiatric hospital school program for mentally retarded/emotionally disturbed children served as subjects. These children varied in both their intellectual functioning levels (mean IQ= 54) and the type of disturbance displayed. Characteristic behaviors exhibited included: self-stimulatory behavior such as rocking, mouthing, and bizarre motor movements; self-abusive behaviors such as hair-pulling or finger biting; diffuse motor activity and distractibility; aggressive behaviors

such as biting and pinching; and withdrawn behavior such as social isolation.

Setting

Subjects were part of the John Merck Unit, a program for disturbed-retarded children at Western Psychiatric Institute and Clinic, Pittsburgh, Pa. The program serves 20 children, 10 on a residential basis and 10 on a day-patient basis. A multi-disciplinary approach to treatment is used.

The study was implemented during the same 30 minute period each day in one classroom. The teacher who instructed the class administered the procedures.

Experimental Tasks

Each child was assigned three tasks within the 30 minute session. One task was the same for all children, and on this task only performance and accuracy data were collected. Two tasks were selected for each child from a pool of 10 tasks so that no two children performed the same task on the same day. All children engaged in each of the 10 tasks once during a week.

Tasks were chosen based on the developmental level of the children. All tasks were preacademic consisting of sorting colors, sizes, matching shapes, matching peg patterns, etc. One task remained constant throughout the study. That task, classification of pictures into categories, had children sort 50 randomly selected cards containing pictures of either food, clothing, animals, flowers, or people into a box with five sorting compartments, with the word and picture representing each category above the slot.

Dependent Variables and Response Definitions

On-Task Behavior. This consisted of three components, all having to be evident for on-task behavior to be recorded. These were: (a) sitting in a chair or standing directly in front of the place where the task was located; (b) visually attending to the task, allowing glances from the task no longer than three seconds; and (c) working toward task completion in a goal directed manner. The percentage of 10-second intervals in which the individual was defined as on-task served as the measure of on-task behavior.

Disruptive Behavior. Disruptive behavior could be recorded only once per 10-second interval. Examples include: (a) out of seat without permission, (b) talking out, (c) motor behaviors interfering with another student's work, (d) throwing objects, and (e) self-stimulatory behaviors (body rocking, etc.).

Task Performance and Accuracy. The percentage of cards attempted out of those assigned (50) daily served as the dependent measure of performance. Accuracy was the percentage of correctly attempted items out of the number assigned.

Observation Procedures and Reliability

Children were observed for on-task and disruptive behavior through a one-way vision screen on a non-continuous (10-second observe, 5-second record), time-sampling basis. Observation order was randomized each day. Data were recorded for task performance and task accuracy at the end of each session.

All observations were made by an observer, naive with regard to the study's purpose. Reliability was checked

by the first author at least once each phase. Agreement for on-task and disruptive behavior was obtained by dividing number of intervals of agreement by agreements plus disagreements and multiplying by 100. Task performance and accuracy reliability were similarly obtained.

Experimental Design

An extension of the ABAB reversal design was used (Hersen & Barlow, 1976). Following baseline, a standard token program was instituted. After establishing a high rate of on-task behavior, a reversal phase was implemented. The token program was than re-instituted. This was followed by a series of six fading stages, during which self-management was gradually introduced by reducing verbal and physical prompts.

Procedure

Phase 1: Baseline. Subjects were permitted to work on each of three assigned tasks for a maximum of five minutes. No experimental manipulations were performed in this phase. The phase lasted 12 days.

Phase 2: Token Program. The 30 minute period in which the study was conducted was divided into 15 random tape-recorded intervals of 30, 60, and/or 90 seconds. Timed intervals made up 15 minutes with the remaining 15 minutes allotted for task instruction and token disbursement. When each interval ended, a bell rang and those children found on-task by the teacher received one token. The phase lasted 14 days.

Phase 3: Baseline. A return to baseline conditions was instituted for 3 days.

Phase 4: Token. All procedures described in Phase 2 were re-implemented for 4 days.

Phase 5: Self-Assessment. With this phase and on the following two phases, teacher instructions, prompts, and directions were gradually eliminated. This phase, lasting 19 days, consisted o. 5 fading stages during which demands for subjects to self-assess were increased. Standard verbal statements were used during each stage of self-assessment (See Table 1).

To determine the appropriate time to move to the next fading stage, a compliance criterion was established. Compliance referred to the child accurately responding to the contingencies present during that phase. A criterion of 75% compliance by three out of four children on two consecutive days was established prior to the beginning of the study.

Phase 6: Self-Reinforcement. Once the children learned to assess their own behavior, a three-step process was used to teach subjects to self-reinforce. This was defined as taking a token without teacher prompting. Self-reinforcement was accomplished by moving from physical to verbal to non-verbal prompts (See Table 1).

Phase 7: Self-Management. In this phase, no further instructions or prompts were used.. Children were expected to perform all functions of the self-management program.

Results

When the token contingency was implemented, a significant increase of on-task behavior was evident for three out of four subjects. Since proceeding to the self-management phases was

contingent on responsiveness to the token program, the one child who did not respond was maintained in the token phase until the final self-management phase. Group data therefore represent only the three subjects who proceeded through the self-management phases.

Results for on-task and disruptive behavior indicated that the significant increases in on-task behavior observed during token reinforcement were maintained at high levels throughout self-management (See Table 2). Disruptive behavior showed a 50% reduction over baseline when the final self-management phase was reached. Individual data supported the group data for all three subjects (See Table 3).

Both group task accuracy and performance increased with each application of the token economy and decreased during the reversal stage. Task accuracy remained at a high level during the self-management phases while task performance continued to increase (See Table 2). Individual data supported these findings for two of the three subjects (See Table 3).

Of particular interest were the results for the subject who did not initially respond to the token system. Through the four phases prior to self-assessment, she displayed a reduced mean level of on-task behavior while disruptive behavior steadily increased. By maintaining her under the procedures used during the token phase and shaping her behavior, she began to respond to the token reinforcement. When the final self-management phase was reached and teacher controls were removed, she performed all self-management behaviors taught to the other children without any direct training.

In addition, as on-task behavior increased, disruptive behavior slowly decreased. Substantial improvements were also observed in task performance and accuracy once she began responding to the token economy.

Eight weeks after the final self-management phase ended, three days of follow-up for on-task and disruptive behavior were compiled. Results indicated continued high levels of on-task behavior while disruptive behavior continued to decrease (See Table 2). All individual data reflected the group results.

Reliability for on-task and disruptive behavior ranged from 88% to 100% (mean= 94%) and 77% to 100% (mean= 84%), respectively. Task performance and accuracy reliability ranged from 90% to 100% (mean= 98%) for both variables.

Discussion

The findings offer strong support for the use of self-management with retarded/disturbed children. On-task levels established during token contingencies were maintained throughout all self-management phases. These results are consistent with other reports where self-management for on-task behavior was established with "normal" children (e.g. Glynn, Thomas, & Shee, 1973).

Of particular importance in the study was the finding of close relationships between on-task behavior and performance. In teaching populations such as young retarded or disturbed children, it is often necessary to first establish increased attention to tasks before accuracy can be demanded. While other studies have stated that reinforcement for accurate

performance is a more efficient procedure (e.g. Ferritor, Buckholdt, Hamblin, & Smith, 1972) the present study suggests that reinforcement for on-task behavior may be equally efficient.

Despite the lack of consistent findings between individual and group results among all variables, it is important to note that high, stable rates of on-task behavior, task performance, and task accuracy were achieved for most subjects relative to their baseline levels. Considering the emotional lability of the population used in the study, the powerfulness of such techniques to overcome expected individual differences was encouraging.

Finally, the results of the subject who did not initially respond to the token program suggests that she had learned to both self-assess and self-reinforce through modeling and imitation. These findings may be strong support for Bandura's studies (e.g. Bandura & Perloff, 1967) which found that self-reinforcement could be learned by modeling. An intriguing question arises as to whether classroom self-management can be achieved by simply training one or two children and using them as models.

The present study provides one of the first extensions of self-management techniques to the special education classroom. Success of these procedures offers a possibility of the development of new teaching methods designed to increase independent classroom behavior with mentally retarded children. Additional research in classroom self-management with the mentally retarded is needed before the full parameters of the technique will have been explored.

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Table 1

Standard Verbal Statements Made to Subjects

During Fading Stages

Self-Assessment	
Fading 1:	You were working when the timer went off. You were... (reference to specific task). Good job. Since you were working when the timer went off, I can give you a token. What do you do with it? What can you get for the tokens when we are finished working?
Fading 2:	You were working when the timer went off. You were...(reference to specific task). Since you were working when the timer went off what do you get? Where do you put it? What can you get for tokens when we're finished?
Fading 3:	You were working when the timer went off. You were...(reference to specific task). Good job. What were you doing when the timer went off? What do you get? Where do you put it?
Fading 4:	The timer went off. Do you get a token? Why? Where do you put it?
Fading 5:	The teacher no longer announced which children were on-task. Instead, he asked all children as a group whether they were working when the timer went off. After each child made the self-assessment, the teacher then asked the children who correctly assessed their behavior, "You were working when the timer went off. What do you get?
Self-Reinforcement	
Fading 6:	A three step process for teaching the children to take tokens themselves was undertaken. After asking all children whether they were working when the timer sounded, the teacher: 1. gave tokens to the child from the container of tokens placed in front of each child. 2. verbally prompted the child to take the token himself. 3. motioned for the child to take the

Table 2

Group Mean Percentage Scores Across Phases

	Baseline	Token	Baseline	Token	Self-Asses.	Self-Reinf.	Self-Manage.	*Follow-Up
On-Task Behavior	50.4	77.7	34.3	83.4	86.0	86.4	87.1	82.0
Disruptive Behavior	20.3	15.6	33.3	13.9	13.7	19.0	9.3	14.0
Task Performance	23.9	58.9	21.7	55.0	65.8	71.6	75.0	No Data
Task % Accuracy	19.0	50.5	18.4	47.8	48.2	49.3	51.1	No Data

*Indicates data based on all subjects

Table 3

Individual Mean Percentage Scores Across Phases

	Baseline	Token	Baseline	Token	Self-Asses.	Self-Reinf.	Self-Manage.	Follow-Up
On-Task:								
Bruce	34.8	72.3	16.7	75.0	74.2	72.8	75.3	74.8
Alan	79.1	93.6	58.0	94.0	97.8	100.0	97.7	No data
Robert	40.2	64.9	27.7	81.3	82.4	90.0	86.3	89.0
Jane	42.3	29.8	16.7	23.5	37.2	45.0	65.6	79.0
Disruptive:								
Bruce	42.4	35.2	50.0	39.5	39.9	40.4	24.4	6.0
Alan	11.9	2.3	19.3	0.0	0.4	0.0	1.6	No data
Robert	6.2	9.5	30.7	2.0	7.0	8.4	2.2	0.0
Jane	63.7	63.6	90.3	76.0	55.1	53.2	47.1	36.0
Performance:								
Bruce	9.8	49.9	0.7	47.0	33.7	26.4	22.9	No data
Alan	51.2	96.1	60.7	95.0	95.9	100.0	100.0	No data
Robert	10.8	26.6	4.0	23.0	55.9	96.4	100.0	No data
Jane	15.0	12.9	1.3	8.0	17.6	33.2	36.7	No data
Accuracy:								
Bruce	9.0	47.2	0.7	43.5	32.5	24.8	21.5	No data
Alan	39.2	84.3	52.0	84.0	91.3	98.5	95.5	No data
Robert	9.0	16.9	2.7	16.0	20.3	28.4	36.9	No data
Jane	11.8	12.3	1.3	8.0	13.3	29.6	31.5	No data